

**Notice of Allowability**

Application No.

10/699,805

Examiner

Zia R. Hashmi

Applicant(s)

YAMADA ET AL.

Art Unit

2881

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/10/2004.
2. ☒ The allowed claim(s) is/are 1-11.
3. ☒ The drawings filed on 04 November 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## DETAILED ACTION

### *Allowable Subject Matter*

1. An "Amendment" was received on September 10, 2004 in response to Office Action of May 20, 2004. Claims 1-8 have been amended and new claims 9-11 have been added, as indicated.

2. Claims 1-11 are allowed.

3. The following is an examiner's statement of reasons for allowance:

With respect to amended independent claims 1 and 6, prior art fails to disclose a mass spectrometer which uses an atmospheric pressure chemical two-step ionization source composed of: a primary ionization part for generating primary ions by means of electric discharge of reagent gas like argon or helium; and a secondary ionization part for generating secondary ions of a sample by a reaction the primary ion and a sample to be introduced from a sample inlet. In a mass spectrometer of the present invention, a substance targeted for measurement of the order of parts per million in the sample is measured with as low a sampling flow rate as about 0.1 L/min. The primary ionization part is formed with an inlet for introducing reagent gas and an outlet for discharging gas for generating the primary ions. Between the primary ionization part and the secondary ionization part, there is arranged a counter electrode having a hole through which the primary ions are caused to pass through toward the secondary ionization part. The secondary ionization part is maintained at negative pressure as compared with the primary ionization part. The ions generated in the secondary ionization part are

introduced into a mass spectrometric portion which has been evacuated in a high vacuum, through an aperture, and mass spectrometric analysis is performed by a mass spectrometer such as a quadrupole type, an ion trap type, or an ion trap-TOF type (time of flight type) mass spectrometer, or a magnetic field type mass spectrometer. The current invention is useful in evaluation of dynamic characteristics of a fuel cell, which requires high sensitivity and low flow rates. For example, in development of a fuel cell, in order to investigate mass balance of gas at inlet and outlet of the fuel cell for evaluating the power generation efficiency, it has become an important problem to confirm how the efficiency changes by changing parameters for temperature, flow rate and the like, online. A sample gas is collected from the fuel cell, traces of hydrogen in the sample gas is selectively ionized through the use of argon, or helium, or nitrogen as dilution gas, and through the use of the atmospheric pressure chemical two-step ionization source, traces of hydrogen are measured online with a high sensitivity in real time.

Claims 2-5 and 7-11 are allowed by virtue of their dependencies on the independent claims 1 and 6.

### ***Conclusion***

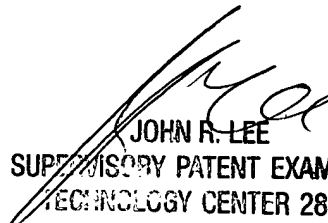
4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments of Statement of Reasons for Allowance".

5. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (571) 272-2473. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477.

Zia Hashmi

September 29, 2004

  
JOHN R. LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800